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# *Heterostemma pingtaoi* (Apocynaceae, Asclepiadoideae), a New Species from Hainan, China

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**ABSTRACT.** *Heterostemma pingtaoi* S. Y. He & J. Y. Lin (Apocynaceae, Asclepiadoideae) is described from Hainan Province, China. The new species is morphologically similar to *H. oblongifolium* Costantin in its leaf blade with an acute apex and rounded base. In comparison, *H. pingtaoi* differs from *H. oblongifolium* in its pubescent petioles (vs. glabrous), the leaves only to 7.3 cm long (vs. 7.5–14 cm), the five calyx glands (vs. 10), and the corolla externally pubescent and yellow-green with mauve pubescence (vs. green and glabrous).

**Key words:** Apocynaceae, Asclepiadoideae, China, Hainan, *Heterostemma*, IUCN Red List.

*Heterostemma* Wight & Arn. has been considered to be a genus of ca. 10 species in India and Malaysia, with five species in India (Hooker, 1885; Costantin, 1912). The genus has up to 12 species in India, China, Southeast Asia, Malesia, and Melanesia, with two native species in Australia, one of which is endemic (Forster, 1996). Tsiang and Li in their 1977 account of *Heterostemma* recognized 11 species occurring in China. Li et al. (1995) later accepted about 30 species for the genus, distributed from China, India, Indonesia, Laos, Malaysia, Burma (Myanmar), Nepal, New Guinea, the Philippines, Sri Lanka, Thailand, and Vietnam, as well as Australia; of these, nine species are found in China, most in Yunnan, Guangxi, and Hainan provinces, where there are seven, six, and five species, respectively. Subsequently, Chen and Li (1998) compared treatments of *Heterostemma* in the 1977

volume of the *Flora Reipublicae Popularis Sinicae* (Tsiang & Li, 1977) with the 1995 volume of the later *Flora of China* (Li et al., 1995) and accepted a tenth species, *H. alatum* Wight, for China. An eleventh taxon, *H. lobulatum* Y. H. Li & Konta was discovered in Xishuangbanna in Yunnan Province (Li et al., 2002). During an expedition to Jianfengling in Hainan Province in autumn 2006, the authors collected a distinctive specimen of *Heterostemma*. Careful comparison with morphologically similar specimens in Chinese herbaria (HITBC, IBSC, and KUN) and our survey of the taxonomic literature support its recognition as a twelfth and new species for the Chinese flora.

***Heterostemma pingtaoi* S. Y. He & J. Y. Lin, sp. nov.**

**TYPE:** China. Hainan: Jianfengling, 18°44'N, 108°50'E, on rocks in montane rainforest, 1039 m, 27 July 2006, *Shao-yun He, Ping-tao Li & Jia-yi Lin* 607271 (holotype, CANT). Figure 1.

Species nova *Heterostemmati oblongifolio* Costantin affinis, a quo lamina foliari 4.5–7.3 cm (vs. 7.5–14 cm) longa, petiolo pubescenti (vs. glabro), corolla externe pubescenti, flavovirenti et malvettina (vs. glabra, viridi), et glandibus calycis 5 (vs. 10) differt.

Twining vines, stems terete to 5 m, with 2 ranks of hairs. Petiole 0.5–1.5 cm, pubescent, leaves opposite, elliptical to oblong, 4.5–7.3 × 1.5–3.3 cm, papery, round to broadly cuneate at base, apex obtuse; basal veins 3 to 5, lateral veins in 6 to 9 pairs; midrib winged abaxially, green adaxially, light green abaxi-



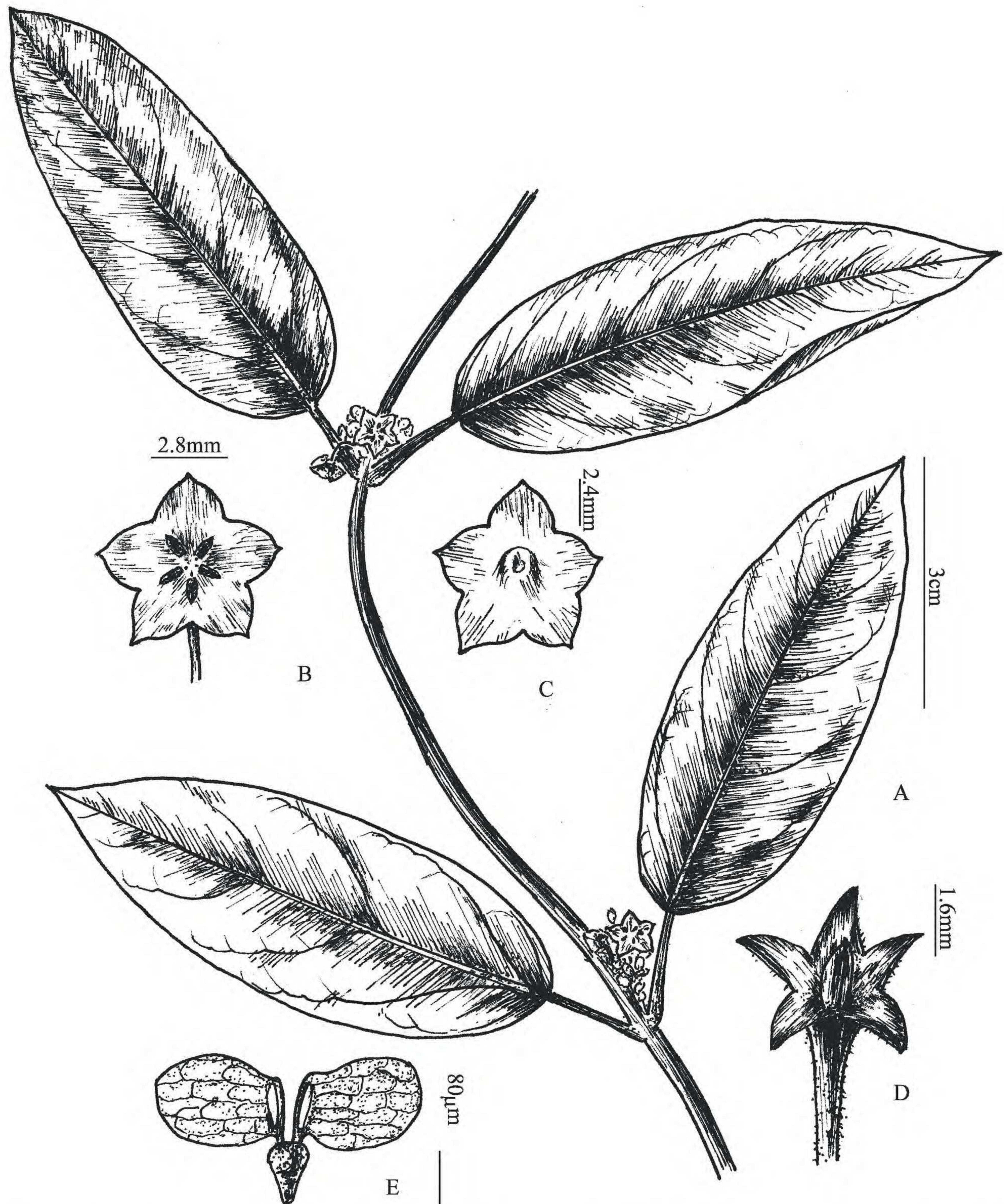


Figure 1. *Heterostemma pingtaoi* S. Y. He & J. Y. Lin. —A. Fertile habit. —B. Flower with calyx removed. —C. External view of corolla. —D. Pedicel and flower showing the calyx, with corolla removed to show ovary. —E. Pollinarium. Drawn from the holotype S. Y. He, P. T. Li & J. Y. Lin 607271 (CANT).

ally. Inflorescences extra-axillary, umbel-like, up to 3- to 6-flowered; peduncle 0.6–0.8 cm; pedicels 5–6 mm. Sepals oblong to triangular, ca. 1.6–1.8 × 1.3–1.5 mm, densely pubescent throughout; calyx with 5 glands at sinus bases, corolla lobes oblong to ovate, 3.5–4 × 1.5–2 mm, 7–7.5 mm diam., internally yellow with orange, externally yellow-green with mauve, pubescent; corona apex almost acute; pollinia oblong. Stigma head oblong. Fruit and seed unknown.

**Distribution and ecology.** *Heterostemma pingtaoi* is only known from the holotype and three other

specimens collected from a small area in Jianfengling, Hainan Province. It was noted to grow on trees or rocks, in the woods, at altitudes from 1000 to 1100 m. The new species was associated with *Syzygium globiflorum* (Craib) P. Chantananarothai & J. Parnell, *Hoya griffithii* Hook. f., *Oreocnide rubescens* (Blume) Miq., *Schefflera heptaphylla* (L.) Frodin, *Ficus tinctoria* subsp. *gibbosa* (Blume) Corner, *Lindera glauca* (Siebold & Zucc.) Blume, *Scindapsus macleurei* (Merr.) Merr. & F. P. Metcalf, *Alocasia macrorrhizos* (L.) G. Don, *Neottopteris nidus* (L.) J.



Table 1. Diagnostic characters of *Heterostemma pingtaoi* S. Y. He & J. Y. Lin and two morphologically similar species.

Characters	<i>H. pingtaoi</i>	<i>H. oblongifolium</i>	<i>H. esquirolii</i>
Petiole (cm)	0.5–1.5, pubescent	1.2–3(–4.5), glabrous	1.3–2.3(–5), pubescent
Leaf shape	elliptical or oblong	oblong or rarely ovate to oblong	ovate or elliptic-ovate
Leaf apex	acute	acute	acuminate
Leaf base	rounded	rounded	cuneate or slightly cordate
Blade length (cm)	4.5–7.3	7.5–14(–17.5)	(4–)6.5–10(–12)
Blade width (cm)	1.5–3.3	(2.8–)3.5–5.4(–7)	2–6.5
Pairs of lateral veins on leaf blade	6 to 9	5 to 7	3 to 4
Peduncle (cm)	0.6–0.8	1–2	1.5–3(4)
No. of flowers per inflorescence	3 to 6	4 to 5	10 to 17
Corolla internal surface	yellow with orange	yellow or orange	yellow or orange
Corolla external surface	yellow-green with mauve, pubescent	green, glabrous	not described, glabrous
Calyx glands	5	10	5
Distribution	Jianfengling, Hainan	Yunnan, Guangdong, Guangxi, Hainan	Guangdong, Guizhou, Yunnan

Sm., and *Alpinia zerumbet* (Pers.) B. L. Burt & R. M. Sm.

*IUCN Red List category.* *Heterostemma pingtaoi* should be considered Data Deficient (DD) according to IUCN Red List criteria (IUCN, 2001) because it is known from only a single collection and thus remains in need of further investigation against future conservation efforts.

*Phenology.* The new species was observed to flower from July to August.

*Etymology.* The specific epithet honors the eminent botanist Ping-tao Li of South China Agricultural University, an expert in the Apocynaceae of China.

*Discussion.* *Heterostemma pingtaoi* closely resembles *H. oblongifolium* Costantin and *H. esquirolii* (H. Lév.) Tsiang. However, the new species differs from *H. oblongifolium* in its pubescent petioles (vs. glabrous), the leaves only to 7.3 cm long (vs. 7.5–14 cm), the five calyx glands (vs. 10), and the corolla externally pubescent and yellow-green with mauve pubescence (vs. green and glabrous). It differs from *H. esquirolii* in its elliptical or oblong leaves (vs. ovate or elliptic-ovate), the leaf blade rounded at the base (vs. cuneate or slightly cordate), six to nine pairs of lateral veins (vs. three to four pairs), and the externally pubescent corolla (vs. glabrous) (Table 1).

*Paratypes.* CHINA. **Hainan:** Jianfengling, 18°44'N, 108°50'E, on rocks in montane rainforest, 1039 m, 27 July 2006, S. Y. He, P. T. Li & J. Y. Lin 607272, 607273, 607274 (CANT).

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